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Framework for various approaches

Technical paper

Summary

This document responds to a request by the Subsidiary Body for Scientific and Technological Advice for a technical paper on how approaches, including those developed or being developed by Parties, individually or jointly, the existing mechanisms under the Kyoto Protocol and other relevant approaches, may: meet standards that are comparable to standards under the UNFCCC; meet the standards referred to in decision 2/CP.17, paragraph 79, and decision 1/CP.18, paragraph 42; enable the accounting, at the international level, of mitigation outcomes; allow for participation, including through possible eligibility criteria; provide co-benefits; have effective institutional arrangements and governance; and relate to international agreements. The document concludes with possible implications for the work programme to elaborate a framework for various approaches.

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I. Introduction

A. Mandate

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its fortieth session, invited Parties and admitted observer organizations to submit, by 22 September 2014, their views, including information, experience and good practice relevant to the design and operation of market-based and non-market-based approaches. The SBSTA suggested that these submissions could address, inter alia, whether and how approaches:

(a) Meet standards that are comparable to standards under the UNFCCC;

(b) Meet the standards referred to in decision 2/CP.17, paragraph 79, and decision 1/CP.18, paragraph 42;

(c) Enable the accounting, at the international level, of mitigation outcomes;

(d) Allow for participation, including through possible eligibility criteria;

(e) Provide co-benefits, including, but not limited to, their contribution to sustainable development, poverty eradication and adaptation;

(f) Have effective institutional arrangements and governance;

(g) Relate to international agreements.[1]

2. It also requested the secretariat to prepare, for consideration at SBSTA 41, a technical paper on how approaches may address the issues referred to in paragraph 1 above, based on the submissions referred to in the same paragraph and other relevant materials.[2]

B. Scope of the document

3. This document assesses experience and good practice regarding the operation of approaches and identifies possible implications for further consideration by Parties.

4. The document considers approaches that have been or are being developed by Parties, individually or jointly, the three existing mechanisms under the Kyoto Protocol (the clean development mechanism (CDM), international emissions trading (IET) and joint implementation (JI)) and other relevant approaches, such as those that have been or are being developed by subnational authorities or non-governmental organizations. The annex lists the approaches that are considered in this document, as well as the abbreviations used.

5. The document considers market-based approaches and non-market-based approaches. Market-based approaches enable the transferability of mitigation outcomes,[3] whereby mitigation outcomes generated by one entity can be used by another entity, as in emissions trading systems and crediting programmes; non-market-based approaches do not.[4]

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[1] FCCC/SBSTA/2014/2, paragraph 166.

[2] FCCC/SBSTA/2014/2, paragraph 168.

[3] "Mitigation outcomes" refer to emission reductions, emission removals or avoided emissions.

[4] Note that a policy or measure may blend market-based and non-market-based elements. For example, an emissions trading system (ETS) (market-based) can raise funds for research and development, and a carbon tax (non-market-based) can enable emitters to use units – which represent mitigation outcomes generated by other entities – as an alternative means to fulfil their tax payment obligations.

6. Among market-based approaches are included crediting approaches and trading approaches. Crediting approaches and trading approaches are similar in that both establish a reference level of emissions within a defined boundary (spatial and/or temporal), cover one or more entities (typically greenhouse gas emitters) and address the generation, transfer and use of mitigation outcomes. Their chief difference relates to how they generate mitigation outcomes. In a crediting approach, mitigation outcomes are generally recognized through the ex post issuance of units equal to the difference between the reference level and actual emissions within the boundary; an incentive to mitigate is created through the receipt of units for mitigation beyond the reference level, which can then be monetized. In a trading approach, mitigation outcomes are generally recognized through the ex ante issuance of units equal to the reference level within the boundary, with covered entities obliged to obtain and surrender a quantity of units equal to their actual emissions; an incentive to mitigate is created through being able to monetize surplus units if the entity holds more units than it needs to meet its compliance obligation.

7. Apart from submissions from Parties and admitted observer organizations, the materials used in preparing this document include primary sources, such as information published or presented by administrators of approaches, and secondary sources, such as articles or reports by intergovernmental or non-governmental organizations.

8. This document should be read in conjunction with two complementary technical papers, one that focuses exclusively on non-market-based approaches,[5] and another that focuses on the new market-based mechanism under the guidance and authority of the Conference of the Parties (COP).[6]

C. Possible action by the Subsidiary Body for Scientific and Technological Advice

9. The SBSTA may wish to draw on the experience and good practice regarding the operation of approaches, as well as the possible implications for further consideration by Parties, as contained in this document, when continuing its consideration of the framework for various approaches (FVA) at SBSTA 41 under its agenda item 12(a), with a view to recommending a draft decision for consideration and adoption at COP 20.[7]

II. Context

10. Discussions on the FVA began under the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) in 2011 in the context of various approaches to enhance the cost-effectiveness of, and to promote, mitigation actions. COP 17 requested the AWG-LCA to conduct a work programme to consider a framework for such approaches.[8]

11. The current SBSTA work programme to elaborate the FVA was mandated at COP 18 with a view to the SBSTA recommending a draft decision thereon for adoption at COP 19.[9] COP 18 decided that the work programme shall consider:

(a) The purposes of the FVA;

(b) The scope of approaches to be included under the FVA;

[5] FCCC/TP/2014/10.
[6] FCCC/TP/2014/11.
[7] FCCC/SBSTA/2014/2, paragraph 169.
[8] Decision 2/CP.17, paragraphs 79–82.
[9] Decision 1/CP.18, paragraph 44.

(c) A set of criteria and procedures to ensure the environmental integrity of approaches in accordance with decision 2/CP.17, paragraph 79;

(d) Technical specifications to avoid double counting through the accurate and consistent recording and tracking of mitigation outcomes;

(e) The institutional arrangements for the FVA.[10]

12. The subsequent work has included deliberations during sessions of the SBSTA and a workshop on the FVA, which was held on 9 October 2013 in Bonn, Germany.[11]

13. During these discussions, Parties have emphasized (and reaffirmed) that all approaches must meet standards that deliver real, permanent, additional and verified mitigation outcomes, avoid double counting of effort and achieve a net decrease and/or avoidance of greenhouse gas emissions. Parties have also discussed the potential role of the FVA in considering whether and how approaches meet these standards, particularly where approaches are used by Parties to fulfil commitments, pledges or contributions under the Convention and its instruments.

14. Parties have also commented on the relationship between the FVA and the work of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention that is to come into effect and be implemented from 2020. This is commonly referred to as the 2015 agreement. In the context of its deliberations on the FVA, SBSTA 40 noted that the work of the ADP is informed by the work of the subsidiary bodies, and also noted that its work on the FVA is being conducted without prejudice to the work of the ADP on the 2015 agreement and pre-2020 ambition.[12]

15. The emerging view appears to be that the FVA should operationalize the use by Parties of approaches to fulfil commitments, pledges or contributions under the Convention and its instruments. Parties have initiated discussions of functions of the FVA that would enable it to serve this role, such as sharing information about approaches, considering approaches with a view to understanding whether and how they meet relevant standards and elaborating and administering the international arrangements that would be needed for their use, particularly in respect of accounting for mitigation outcomes and eligibility criteria for participation.

III. Analysis and options

A. How approaches meet standards that are comparable to standards under the UNFCCC

1. Overview

16. "Standards under the UNFCCC" refer to standards agreed by formal bodies under the Convention and its instruments, specifically the COP and the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP). These also include bodies under the COP or the CMP, such as the regulatory bodies for two Kyoto Protocol mechanisms: the Executive Board of the CDM and the Joint Implementation Supervisory Committee (JISC).[13]

[10] Decision 1/CP.18, paragraph 46.
[11] FCCC/SBSTA/2013/INF.11.
[12] FCCC/SBSTA/2014/2, paragraphs 164.
[13] There is no equivalent regulatory body for the third Kyoto Protocol mechanism, IET.

17. Given the focus of the FVA, this document interprets "standards" as those relating to the generation, transfer or use of mitigation outcomes. The CMP, the Executive Board of the CDM and the JISC have established various standards in these areas in the context of the Kyoto Protocol. These standards are identified in table 1.

Table 1
UNFCCC standards for generating, transferring and using mitigation outcomes

Type of approach	*Generation*	*Transfer*	*Use*
Market-based: crediting	CDM/JI methodologies, issuance rules, registry rules	CDM forwarding rules, JI transfer and acquisition rules, registry rules, transaction rules	Registry rules, compliance rules
Market-based: trading	Process for setting commitments, inventory rules, calculation and recording rules, registry rules	IET transfer and acquisition rules, registry rules, transaction rules	Registry rules, compliance rules
Non-market-based	–	Not applicable	–

18. It may be noted from table 1 that there are no established UNFCCC standards for the generation or use of mitigation outcomes from non-market-based approaches,[14] while standards for the transfer of mitigation outcomes from non-market-based approaches are not applicable.[15] The remainder of this section will therefore focus on market-based approaches.

2. Options

19. The following paragraphs identify how approaches can meet standards comparable to UNFCCC standards.[16]

Generation of mitigation outcomes

20. For crediting approaches, table 2 identifies how they meet standards comparable to CDM/JI methodologies in relation to the establishment of reference levels and the measurement, reporting and verification (MRV) of actual emissions.

[14] The national communications of developed country Parties contain estimates of the mitigation impacts of non-market-based approaches.

[15] Examples of organizations considering this matter outside the UNFCCC include the Organisation for Economic Co-operation and Development (OECD) and the World Resources Institute (WRI).

[16] The CDM and JI are omitted because, being elaborated under the UNFCCC, by definition they meet standards comparable to standards under the UNFCCC. An exception relates to the standards for measuring, reporting and verifying mitigation outcomes under JI track 1, which are established at the sole discretion of host countries meeting the six eligibility criteria under the Kyoto Protocol.

Table 2
Meeting standards comparable to clean development mechanism /joint implementation methodologies

Option	*Description*	*Considerations*	*Examples*
Use CDM/JI methodologies	The approach explicitly requires the use of CDM/JI methodologies.	Ensures harmonization of methodologies. Requires methodologies to be first adopted under the CDM/JI. May save time and cost versus developing own methodologies.	GS, VCS[a]
Establish own methodologies based on CDM/JI methodologies	The approach requires the use of methodologies that are based on, or use as a starting point, CDM/JI methodologies.	Ensures some correspondence with CDM/JI methodologies. Requires methodologies to be first adopted under the CDM/JI. May save time and cost versus developing own methodologies. May enable tailoring for circumstances.	CCER, ACR, CAR, GS, VCS[b]
No explicit reference to CDM/JI methodologies	This option may reflect a deliberate policy choice or an absence of relevant CDM/JI methodologies. It may involve referring to other domestic or international methodologies.	May lead to divergence from CDM/JI methodologies; environmental integrity may be higher or lower as a result. May lead to 'approach shopping' by participants if multiple methodologies operate in parallel within a single area.	CCER, JCM, Alberta, ACR, California, CAR, GS, Quebec, RGGI, Tokyo, VCS[c]

[a] Gold Standard (GS) accepts any CDM methodology in specific sectoral scopes (renewable energy, energy efficiency and waste handling and disposal). Verified Carbon Standard (VCS) accepts any CDM methodology.

[b] Numbers of methodologies cited as based on CDM methodologies are: the China Certified Emission Reduction (CCER), 173 of 178; American Carbon Registry (ACR), 5 of 20; Climate Action Reserve (CAR), 8 of 15; GS, 12 of 14; and VCS, 15 of 31.

[c] Numbers of methodologies not cited as based on CDM methodologies are: CCER, 5 of 178 (all from the land use, land-use change and forestry sector, where the CDM has no methodologies other than in afforestation or reforestation); Joint Crediting Mechanism (JCM), 5 of 5; Alberta, 34 of 34; ACR, 15 of 20; California, 5 of 5; CAR, 7 of 15; GS, 2 of 14; Quebec, 3 of 3; Regional Greenhouse Gas Initiative (RGGI), 5 of 5; Tokyo, 4 of 4; and VCS, 16 of 31.

21. Crediting approaches have generally established their own rules for issuance and registry operation which are comparable to CDM/JI rules. These include the establishment of registries. It may be noted that Gold Standard (GS), in addition to maintaining its own registry, tracks certain units issued by the CDM and JI in the UNFCCC registry system.

22. For trading approaches, the relevant UNFCCC standards tend to apply at the level of a Party, such as the process for setting commitments, the reporting guidelines on annual inventories, and the rules for calculating and recording a commitment and issuing a corresponding quantity of units. These standards have limited comparative application to other approaches, which tend to apply at the level of individual entities. Nevertheless, it may be noted that UNFCCC standards have helped to inform the development of certain attributes of trading approaches.[17]

Transfer of mitigation outcomes

23. For crediting and trading approaches, the relevant UNFCCC standards include the CDM rules on forwarding units, the JI and IET rules on the transfer and acquisition of units, as well as registry and transaction rules. These rules generally apply at the level of a Party and are less relevant to other approaches, which tend to apply at the level of individual entities. However, other approaches have developed registries and record and track transactions of units with serial numbers within these registries. The basic functions of these registries are comparable to those of national registries under the Kyoto Protocol.

Use of mitigation outcomes

24. For crediting and trading approaches, the relevant UNFCCC standards include the compliance rules under the Kyoto Protocol and the registry rules. These standards are liberal, with few qualitative prohibitions on the use of units – other than against the use of units from nuclear facilities under the CDM or JI – and no numerically quantified limitations, although a general principle affirms that the use of market-based approaches "shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort" of each developed country Party to meet its commitments under the Kyoto Protocol.[18] By contrast, the standards of other approaches can be significantly more restrictive, with specific qualitative and quantitative criteria.[19] As a general observation, the use of mitigation outcomes from other approaches tends to be tied to the broader policy interests of the jurisdiction in question.

[17] For example, the level of a Party's commitment, pledge or contribution under the Convention and its instruments can inform the establishment of the reference level of its trading approach: the caps in the European Union Emissions Trading System (EU ETS) in its 2008–2012 and 2013–2020 phases correlated with the commitments of the European Union (EU) under the first and second commitment periods of the Kyoto Protocol. In addition, UNFCCC measurement, reporting and verification standards request Parties to use the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories and IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* and *Good Practice Guidance for Land Use, Land-Use Change and Forestry*; in many trading approaches, IPCC default values are widely used.

[18] Decision 2/CMP.1, paragraph 1.

[19] For example, various ETS prohibit the use of units generated from certain industrial gas activities, impose quantitative limits and/or favour the use of units from domestic sources and/or sources with a close bilateral link.

B. How approaches meet the standards referred to in decision 2/CP.17, paragraph 79, and decision 1/CP.18, paragraph 42

1. Overview

25. The three standards emphasized in decision 2/CP.17 (and re-emphasized in decision 1/CP.18) are that an approach must:

(a) Deliver real, permanent, additional and verified mitigation outcomes;

(b) Avoid double counting of effort;

(c) Achieve a net decrease and/or avoidance of greenhouse gas emissions.

26. The first standard consists of four elements that address the quality of the mitigation outcomes generated by an approach:

(a) "Real" means that mitigation outcomes are actual and authentic, meaning that a credible reference level is set, emissions are not displaced beyond the boundaries of an approach (a concept known as "leakage"[20]) and inaccuracies arising from fraud or error are addressed;

(b) "Permanent" means that a mitigation outcome is irreversible or, if reversible, that measures exist to compensate for a reversal if one occurs. Reductions in emissions by sources are inherently irreversible and are therefore permanent. However, removals of emissions by sinks are reversible – in that they sequester greenhouse gases and risk releasing them in the future – and thus require measures to address possible reversals;

(c) "Additional" means that a mitigation outcome attributed to an approach must be greater than what would have occurred in the absence of the approach. This assessment requires consideration of a hypothetical counterfactual scenario that, by definition, is not known at the time that a determination of additionality is made. Therefore, in practice most determinations of additionality do not consider individual mitigation outcomes but rather activities that may generate mitigation outcomes;

(d) "Verified" means that mitigation outcomes are confirmed by independent competent assessment. The intention behind verification is to ensure that mitigation outcomes meet certain criteria, and there is a general convergence among approaches that this is best accomplished through an assessment by an accredited expert, as opposed to self-assessment or assessment only by a regulatory agency.[21]

27. The second standard prohibits the counting of a single quantity of mitigation outcomes for more than one mitigation purpose.[22] Multiple variants of double counting exist, and they can be classified based on when it can occur, as follows:

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[20] The CDM defines leakage for non-forestry activities as "the net change of anthropogenic emissions by sources of GHG which occurs outside the project boundary, and which is measurable and attributable to the [activity]" and for forestry activities as "the increase in GHG emissions by sources or decrease in carbon stock in carbon pools which occurs outside the boundary of an [activity], which is measurable and attributable to the [activity]".

[21] A regulatory agency may have reserve authority to review this assessment. For example, the CDM and JI track 2 enable a request to be made to the regulatory body to review an activity, and the ETS of California, United States of America, provides for a review process by its regulatory agency.

[22] A minority of submissions and other relevant materials suggest that double counting refers not only to fulfilling more than one mitigation goal, but also to meeting any other goal, such as the delivery of support. Under this view, if a Party finances a mitigation activity in another Party, it could not count both the mitigation outcomes of the activity and its financial support towards the fulfilment of a commitment, pledge or contribution.

(a) When generating mitigation outcomes (double issuance): this involves the creation of multiple mitigation outcomes for a single quantity of mitigation;

(b) When transferring mitigation outcomes (double selling): this involves the transfer of a single quantity of mitigation to multiple recipients;

(c) When using mitigation outcomes (double claiming): this involves the use of a single mitigation outcome (in whatever form that it is recognized) for multiple purposes.[23]

28. The third standard requires that an approach have a negative net impact on emissions. The prevailing interpretation of this issue is that the impact of an approach needs to be considered from the perspective of the global atmosphere. Specifically, if an approach generates *n* quantity of mitigation in one location, any corresponding increase of emissions in all other locations must be less than *n*.[24]

29. The focus of this section is on market-based approaches: being at more mature levels of development than non-market-based approaches, there is a commensurately larger body of experience to draw from.[25]

2. Options

30. The following paragraphs identify how approaches can meet the standards referred to in decision 2/CP.17, paragraph 79, and decision 1/CP.18, paragraph 42. For ease of reference, the four elements under the first standard are presented separately.

Deliver real mitigation outcomes

31. For crediting approaches, the delivery of real mitigation outcomes can vary significantly, given their diversity of design choices. Tables 3–5 list the ways in which these approaches can deliver real mitigation outcomes with reference to setting a credible reference level, avoiding leakage and addressing inaccuracies, respectively.

Table 3
Delivering real mitigation outcomes – setting a credible reference level

Option	*Description*	*Considerations*	*Examples*
Activity-specific reference level	A reference level is developed for a specific activity. Mitigation outcomes are measured against this level.	Enables bespoke calculations of mitigation outcomes. Is resource-intensive if conducted at scale. Can lead to inconsistent calculations across activities.	CCER, CDM, JI track 2, GS, VCS

[23] A subcategory of double claiming is known as "double coverage", whereby a mitigation outcome is claimed towards two different types of commitments, pledges or contributions. Further consideration of this matter is set out in: Hood C, Briner G and Rocha M. 2014. *GHG or not GHG: Accounting for Diverse Mitigation Contributions in the Post-2020 Climate Framework*. Climate Change Expert Group Paper No. 2014(2). Organisation for Economic Co-operation and Development.

[24] The concept of 1:1 correspondence between mitigation in one location and increased emissions in another location is known by such terms as "pure offsetting" or "zero sum offsetting". Approaches originally established on this principle can nevertheless be applied in such a way as to deliver a net decrease and/or avoidance of emissions.

[25] As noted above, examples of organizations considering the application of these standards to non-market-based approaches include OECD and WRI.

Option	*Description*	*Considerations*	*Examples*
Standardized reference level	A reference level is developed for all activities of a certain type. Mitigation outcomes are measured against this level.	Requires intensive upfront calculations. May allocate units to activities that are already meeting the reference level.	JCM, CDM (standardized baselines), CAR,

Table 4
Delivering real mitigation outcomes – avoiding leakage

Option	*Description*	*Considerations*	*Examples*
Set comprehensive boundary for activity	The boundaries of an activity are defined to include all possible areas of leakage. No leakage is therefore possible.	Removes need to consider leakage separately. Requires monitoring of emissions at multiple sites, potentially located internationally, which may be administratively prohibitive.	JCM, CAR
Deduct estimated leaked emissions	Leaked emissions are estimated and deducted from the mitigation outcomes of an activity.	Requires estimation of leakage. May result in overly conservative estimates and reduced recognition of mitigation outcomes.	CDM, VCS

Table 5
Delivering real mitigation outcomes – addressing inaccuracies from fraud or error

Option	*Description*	*Considerations*	*Examples*
'Seller liability': compensation for mitigation outcomes	If mitigation outcomes are inaccurately calculated, the entities involved in the activity must compensate for this amount.	Recognizes that the entity/entities holding mitigation outcomes might not have been involved in the underlying activity and may be faultless. Presupposes ongoing existence/solvency of entities involved in underlying activity.	CDM, JI track 2, Quebec[a]
'Buyer liability': cancellation of mitigation outcomes	If mitigation outcomes are inaccurately calculated, they cease to be recognized, regardless of who is holding them.	Disincentivizes support for mitigation activities by imposing liability on entities holding mitigation outcomes, even if not responsible for fraud or error.	California[b]

Option	*Description*	*Considerations*	*Examples*
Contingency reserve	Some mitigation outcomes are set aside to compensate for inaccurately calculated outcomes, if the entities involved do not compensate for them.	Requires those not responsible for fraudulent or erroneous calculations to cover those who are.	Quebec[c]

[a] The CDM and JI track 2 impose liability on the independent experts who assess mitigation outcomes; they must cancel units (of any type under the Kyoto Protocol) equal to those fraudulently or erroneously issued. The Quebec emissions trading system (ETS) imposes liability on the participants in the activity.

[b] For example, units issued by a mitigation activity that breaches environmental rules may be cancelled, regardless of their holder at the time.

[c] The Quebec ETS levies a fixed percentage (3 per cent) on all mitigation outcomes to be placed in a reserve account to cover any fraudulently or erroneously issued units.

32. For trading approaches, the delivery of real mitigation outcomes is more standardized, being tied chiefly, if not exclusively, to the ambition of the reference level set across the approach, represented as a cap. The cap may be based on broader policy factors, and changing external circumstances may make it more or less credible for reasons unrelated to emissions performance. Leakage can be a concern for high-emitting and trade-intensive sectors, with emissions at risk of being displaced beyond the boundaries of the approach, possibly internationally. As such, trading approaches often address leakage by subsidizing participation in the approach, such as through the free allocation of units that may be used to comply with obligations under the approach.[26] This can effectively address leakage but may introduce distortions in the overall application of the approach. As for addressing inaccuracies, fraudulent or erroneous issuances are typically subject to local laws and regulations.[27]

33. For crediting and trading approaches alike, the credibility of their reference levels can be enhanced through the setting of dynamic reference levels that are periodically adjusted to take into account changes in technological advancement and/or penetration of the deployed technology.

Deliver permanent mitigation outcomes

34. Table 6 lists the ways in which approaches can deliver permanent mitigation outcomes. In view of the definition of permanence, these options apply only to approaches covering sinks. These options generally relate to crediting approaches, as few trading approaches cover sinks.[28]

[26] Examples include: the California ETS, which has three industry classifications for leakage risk (high, 100 per cent free allocation; medium, 75 per cent free allocation; and low, 50 per cent free allocation); the EU ETS, where a sector or subsector deemed to be exposed to a significant risk of carbon leakage receives a higher share of free allowances; and the Korea ETS, where companies in sectors considered energy-intensive and trade-exposed receive 100 per cent free allocation.

[27] Under trading approaches, the issuance of units on the basis of a pre-agreed cap would not be deemed to be fraudulent or erroneous, notwithstanding any lack of correlation to mitigation outcomes.

[28] An exception is the New Zealand ETS.

Table 6
Delivering permanent mitigation outcomes

Option	*Description*	*Considerations*	*Examples*
Reserve accounts	A portion of mitigation outcomes from an activity is set aside to compensate for possible reversals from it. The size may be fixed or vary based on an individualized risk assessment.	Links liability for compensation to participants in an activity, thereby establishing a strong incentive to prevent reversals. Requires means to address reversals that exceed the set-aside portion.	CDM, VCS[a]
Buffers	A portion of mitigation outcomes from an activity is set aside to compensate for possible reversals from all activities under the approach. The size may be fixed or vary based on an individualized risk assessment.	May create risk of moral hazard, as liability for compensation is spread against multiple activities and participants, thereby reducing the incentive to prevent reversals.	Australian CFI, CAR[b]
Compensation	No mitigation outcomes are set aside, but participants in an activity must compensate for any reversal.	Links liability for compensation to participants in an activity. Lack of 'insurance' necessitates a strong enforcement regime.	NZ ETS[c]
Non-permanent recognition of mitigation outcomes	Mitigation outcomes are recognized through temporary means, such as the issuance of units that periodically expire and require replacement.	Can be administratively cumbersome. Imposes liability on holders of mitigation outcomes and reduces incentive to support mitigation activities.	CDM[d]
Prohibition by activity or activity type	Mitigation outcomes are not recognized on account of concerns about permanence. This prohibition may apply to individual activities or to all activities of a certain type.	If activity-specific, may be cumbersome to require a risk assessment of each activity. If applicable to all activities of a single type, may deny recognition of deserving activities.	CDM, VCS[e]

[a] In the CDM, a fixed percentage (5 per cent) of units issued from carbon dioxide capture and storage in geological formations activities are set aside in a reserve account to account for any net reversals from the affected activity. If this amount is insufficient to fully compensate for a reversal,

then the participants in the underlying activity are required to compensate for the balance. If the participants are unable to compensate for it, liability attaches to the host Party (if it has accepted this obligation) or the Parties that hold the units. In VCS, a variable percentage of mitigation outcomes from an affected agriculture, forestry or other land-use activity is used to compensate for reversals, before accessing the broader pool and imposing liability on participants in other activities.

[b] In the Australian Carbon Farming Initiative, 5 per cent of units from carbon sequestration activities are placed in a buffer to insure the entire scheme against residual risks that cannot be managed by other permanence arrangements. In CAR, each forestry activity receives an activity-specific risk rating, which may be updated annually, to determine the percentage of mitigation outcomes to be contributed to its respective pool.

[c] The New Zealand emissions trading system is an example of a trading approach that covers sinks. Participants must compensate for reversals by using units from a list of approved types; participation is mandatory for owners of land that has been forested since 31 December 1989 and optional for owners of land that has been forested since a subsequent date.

[d] Under the CDM, temporary units known as temporary certified emission reductions and long-term certified emission reductions are issued for land use, land-use-change and forestry activities involving afforestation or reforestation.

[e] The CDM does not issue units for mitigation outcomes generated by land use, land-use change and forestry activities other than those involving afforestation or reforestation. Under the VCS, the agriculture, forestry and other land-use activity non-permanence risk tool prevents the recognition of mitigation outcomes from any activity that is deemed to pose an unacceptably high level of risk.

Deliver additional mitigation outcomes

35. For crediting approaches, which tend to assess mitigation outcomes on an activity-specific level, additionality is a major focus of regulatory attention. Table 7 lists the two broad options for crediting approaches to deliver additional mitigation outcomes.

Table 7
Delivering additional mitigation outcomes

Option	*Description*	*Considerations*	*Examples*
Activity-specific additionality	Additionality is assessed on an activity-by-activity basis, such as through investment analysis, barrier analysis or common practice analysis.	Enables bespoke consideration of an activity's additionality. Is resource-intensive if conducted at scale. Can lead to inconsistent calculations across activities.	CCER, CDM, JI track 2, GS, VCS
Standardized approaches	Additionality is assessed in a standardized manner, such as through positive or negative lists whereby additionality is deemed automatic or not, or performance standards.	Can be simple to administer. Requires upfront determination of standardized approach. May not be adequately tailored to activities that are atypical among their type.	JCM, CDM (certain small-scale activities), CAR

36. For a trading approach, its additionality can be assessed by considering the ambition of its cap and, specifically, whether it is more ambitious than a 'business as usual' level of emissions within the boundary of the approach.

37. For crediting and trading approaches, assessments of additionality can take into account domestic mitigation policies (existing and/or planned) to ensure that units are issued only for mitigation that exceeds what is required by other policies and measures.

Deliver verified mitigation outcomes

38. Table 8 lists the ways in which market-based approaches can deliver verified mitigation outcomes.

Table 8
Delivering verified mitigation outcomes

Option	*Description*	*Considerations*	*Examples*
Expert accredited under approach	Requires mitigation outcomes to be assessed by an expert third party, accredited under the rules of the approach.	Requires administration of system for overseeing experts, including ensuring appropriate competencies, monitoring performance and sanctioning violations.	CCER, CDM, California[a]
Expert accredited externally	Requires mitigation outcomes to be assessed by an expert third party, accredited externally.	Presupposes existence of one or more trusted external accreditation bodies. May require monitoring of such bodies.	JCM, CAR, GS, Ontario, Quebec, VCS[b]

[a] Under the CCER, the national agency sets personnel and capital requirements and records accreditations. The CDM and JI track 2 have criteria and procedures for accrediting experts (designated operational entities in the CDM; accredited independent entities in JI track 2). The California ETS certifies experts to assess mitigation outcomes and issue units, inter alia (registries).

[b] GS, JCM and VCS allow assessments to be performed by experts accredited under the CDM. CAR, GS, JCM and the Quebec ETS allow assessments to be performed by experts accredited under ISO14065 standards.

Avoid double counting of effort

39. Table 9 lists the ways in which approaches can avoid the double counting of effort. It may be noted that several approaches have not yet needed to confront this issue, as their boundaries have not overlapped with others.

Table 9
Avoiding double counting of effort

Option	*Description*	*Considerations*	*Examples*
Participation in a unified accounting system	An approach is part of a broader accounting system that tracks all mitigation outcomes.	Requires establishment of an infrastructure (such as registries, transaction log) sharing of information among them.	CDM, JI, IET
Prohibition on participation in multiple approaches	Under the rules of an approach, an activity may not participate in any other approach.	Requires means to confirm that an activity is participating in only one approach, such as attestations by entities involved in activities and a publicly accessible and searchable database of activities.	JCM, CAR
Prohibition on generating mitigation outcomes in multiple approaches	Under the rules of an approach, an activity may participate in multiple approaches but may only generate mitigation outcomes (such as by issuing units) under one approach.	Requires means to confirm that an activity is generating mitigation outcomes under one approach, such as attestations by entities involved in activities and a publicly accessible and searchable database of activities and (for example) issuances.	CCER, EU ETS (with CDM/JI), VCS

Achieve a net decrease and/or avoidance of greenhouse gas emissions

40. In general terms, a net decrease and/or avoidance of global greenhouse gas emissions refers to the number of credits from an activity used to offset other emissions being lower than the actual emission reductions or avoidance resulting from the activity. In this context, "net" refers to the actual emission reductions/avoidance minus the portion used as offsets.

41. A net decrease and/or avoidance of greenhouse gas emissions can be achieved on the 'supply side', such as where the number of units issued is less than the total mitigation outcomes generated, or on the 'demand side', such as where the number of units used is greater than the share of the commitment, target or contribution that it seeks to fulfil. Tables 10 and 11 set out the respective options.

Table 10
Achieving a net decrease and/or avoidance of greenhouse gas emissions (supply-side)

Option	*Description*	*Considerations*	*Examples*
Conservative reference levels/baselines	Rather than recognizing all mitigation outcomes beyond 'business as usual' levels, recognition could start at a more ambitious level.	Would necessitate careful application to avoid unduly underestimating mitigation outcomes, which would lower incentives for participation.	JCM, CDM
Conservative calculations	Conservative assumptions, estimates and factors may be applied to ensure that mitigation outcomes are not overestimated.	Would necessitate careful application to avoid unduly underestimating mitigation outcomes, which would lower incentives for participation.	JCM, CDM, CAR, GS, VCS
Reduced crediting periods	Mitigation outcomes may be recognized for a period of time that is shorter than the lifespan of the underlying activity.	Would require some means for confirming the operation of an activity outside of a recognition period. Requires subjective setting of recognition period.	CDM, CAR, VCS[a]
Discounting	A factor can be applied to discount mitigation outcomes that are generated, either at a fixed or at a variable level (such as by activity type).	Would disproportionately penalize better performers, as larger mitigation outcomes would result in larger discounting.	–
Cancellation (at location generating the mitigation outcome)	A portion of mitigation outcomes may be cancelled by the jurisdiction hosting the activity.	Sometimes referred to as an "own contribution". Cannot be used to fulfil a commitment, pledge or contribution, either of the host or elsewhere.	CDM[b]

[a] Examples of these periods include: 10 years (non-renewable) or 7 years (renewable twice) in the CDM; 10 years (renewable once) in CAR; and 10 years (renewable twice) in VCS. Under JI, mitigation outcomes generated before or after a host Party has a commitment under the Kyoto Protocol are not eligible to be credited.

[b] Decision 1/CP.19, paragraph 5(c), invited Parties to promote the voluntary cancellation of units from the CDM, without double counting, as a means of closing the pre-2020 ambition gap.

Table 11
Achieving a net decrease and/or avoidance of greenhouse gas emissions (demand-side)

Option	*Description*	*Considerations*	*Examples*
Discounting	A factor can be applied to discount mitigation outcomes that are used, either at a fixed or at a variable level (such as by activity type).	Would disincentivize support for mitigation activities that are subject to discounting, relative to those that are not.	–[a]
Cancellation (at location using the mitigation outcome)	A portion of mitigation outcomes may be cancelled by a jurisdiction seeking to use them.	Cannot be used to fulfil a commitment, pledge or contribution, either of the host or elsewhere.	CDM[b]

[a] Demand-side discounting is not a widely used practice. One example where it was proposed was in the draft United States of America federal emissions trading system, which would have discounted the use of international units generated by crediting approaches.

[b] Decision 1/CP.19, paragraph 5(c), invited Parties to promote the voluntary cancellation of units from the CDM, without double counting, as a means of closing the pre-2020 ambition gap.

C. How approaches enable the accounting, at the international level, of mitigation outcomes

1. Overview

42. "Accounting" refers to rules for how a Party's fulfilment of a commitment, pledge or contribution under the Convention and its instruments is assessed, including which actions count towards this fulfilment. It is closely connected to matters relating to the MRV of emissions, such as inventories, reporting requirements and other transparency measures.

2. Options

43. There are calls for the operation of approaches to adhere to the broader accounting principle of double-entry bookkeeping. This principle holds that any instance of generating, transferring or using a mitigation outcome needs to be reflected in two locations, which must subsequently reconcile. For example, the transfer of a mitigation outcome between two locations covered by a commitment, pledge or contribution must result in an addition to the acquiring location and a subtraction from the transferring location.[29]

44. The transfer of a mitigation outcome from a location not covered by a commitment, pledge or contribution to a location covered by a commitment, pledge or contribution must result in an addition to the acquiring location. There is no subtraction in the transferring location but appropriate MRV of the mitigation outcome is essential.[30]

45. Approaches need to apply robust environmental integrity standards in all cases to ensure the quality of what is being generated, transferred and used, so as to prevent the undermining of the integrity of the system. This principle applies equally to mitigation

[29] For example, transfers under IET and JI are conducted under Article 3, paragraphs 10 and 11, of the Kyoto Protocol, which provide for additions and subtractions between developed country Parties.

[30] For example, transfers under the CDM are conducted under Article 3, paragraph 12, of the Kyoto Protocol, which provides for additions to developed country Parties. There are no subtractions in the transferring location as developing countries do not have commitments under the Kyoto Protocol.

outcomes from a capped environment and mitigation outcomes from an uncapped environment. Generally speaking, there is a greater incentive to apply strong MRV when stringent emission caps are in place, as transferring away excess credits is more likely to put at risk the Party's ability to fulfil its commitment, pledge or contribution.

46. Examples of ways in which approaches are accounting for mitigation outcomes include the following:

(a) Under the Kyoto Protocol, all developed countries are required to submit the standard electronic format annually to the secretariat to report on annual transactions and all amounts of Kyoto Protocol units.[31] Furthermore, the international transaction log and each country's national registry is connected and each transaction is fully tracked internationally based on the data exchange standards with serial numbers of the units;

(b) Under the Convention, all developed countries are requested to report, using the common tabular format, on their use of market-based approaches in reaching their quantified economy-wide emission reduction targets in their biennial reports;[32]

(c) The European Union Emissions Trading System (EU ETS) has a system for managing the trading of units, including the European Union Transaction Log and the Consolidated System of European Union Registries, which covers all 31 countries participating in the EU ETS. The registry records national implementation measures (a list of installations covered by the EU ETS and any free allocation to each installation), accounts of companies or individuals holding units, transfers of units performed by account holders, annual verified emissions from installations and annual reconciliations of units and verified emissions;

(d) The China Certified Emission Reduction, the Costa Rica domestic carbon market and the Joint Crediting Mechanism intend to establish and maintain separate registries for their units;

(e) The emissions trading systems of California, United States of America, and Quebec, Canada, employ the Compliance Instrument Tracking System Service (CITSS) to record ownership of compliance instruments and information related to accounts, enable and record compliance instrument transfers, facilitate compliance verification and support market oversight;

(f) The Regional Greenhouse Gas Initiative (RGGI) of the United States has developed a tracking system that is similar to the CITSS, called the RGGI CO_2 Allowance Tracking System;

(g) Climate Action Reserve, GS and the Verified Carbon Standard have developed registries to issue, transfer, track and retire units in holding accounts with unique serial numbers, as well as to publish registered activities, issued units and retired units.

47. As the previous paragraph shows, a wide range of accounting and tracking systems is emerging. To the extent that approaches developed or being developed outside the UNFCCC are intended to be used to meet commitments, pledges or contributions under the Convention and its instruments, there would appear to be a need for international accounting rules and an international tracking system with infrastructure to accommodate different mitigation outcomes. One possible scenario is to extend the application of the international transaction log and/or the CDM registry for recording and tracking mitigation outcomes. Under this scenario, the modalities for inter-registry connectivity and the nature of transaction checks would need to be further elaborated.

[31] Decision 14/CMP.1.

[32] Decision 19/CP.18, annex, tables 2(e)I and 2(e)II.

D. How approaches allow for participation, including through possible eligibility criteria

1. Overview

48. "Participation" in approaches may be seen in two ways. It can refer to participation by individual entities in an approach or, especially in the context of the FVA, it may refer to the participation of Parties and their approaches at the international level, in particular the international recognition of mitigation outcomes generated under these approaches. This section considers both of these meanings in turn.

2. Options

49. The first meaning of participation relates to participation by an entity in an approach. Trading approaches generally require mandatory participation by all entities within specified sectors, with limited exemptions (such as facilities with emissions below a *de minimis* threshold). The selection of which sectors are to be covered can vary, with the focus tending to be on high-emitting sectors and the availability of opportunities to reduce or remove emissions within these sectors.[33]

50. By contrast, crediting approaches generally allow for voluntary participation within the scope of activities allowed. Most crediting approaches implemented at the international level have tended to be open to a broad scope of activities.[34] Those that complement domestic approaches (particularly crediting approaches that have been developed to support a particular trading approach, as in California or Quebec) may limit participation on the basis of sector, geography or other factors in line with broader policy aims.

51. The second meaning of participation relates to the international recognition of mitigation outcomes generated under these approaches established and operated by Parties. Some submissions and other materials considered in the preparation of this document referred to criteria which would need to be fulfilled by Parties before mitigation outcomes from their national-level approaches could be considered valid for international transfer and use in fulfilling commitments, pledges and contributions. These criteria would be focused on demonstrating that the Party has sufficiently robust and transparent systems in place to operate in accordance with the prevailing accounting framework.

52. Such eligibility criteria could address:

(a) Being a Party to the relevant agreement;

(b) Having a quantified commitment, pledge or contribution;

(c) Having in place a system to implement MRV requirements;

(d) Having submitted the most recently required national inventory;

(e) Having access to a registry system;

(f) Submitting additional information on an ongoing basis with regard to the international transfer and use of mitigation outcomes in fulfilling commitments, pledges or contributions.

53. Parties without quantified commitments, pledges or contributions that wish to participate in generating mitigation outcomes under baseline and crediting approaches may

[33] International Carbon Action Partnership. 2014. *Emissions Trading Worldwide.*

[34] Examples include the CDM (open to all activities except nuclear and land use, land-use change and forestry activities other than afforestation and reforestation), JI (open to all activities except nuclear), GS and the Verified Carbon Standard (VCS).

not need to be subject to this full set of eligibility criteria. Where such Parties are not seeking to use mitigation outcomes from other Parties against commitments, pledges or contributions of their own, they may only need to be a Party to the relevant agreement.

E. How approaches provide co-benefits, including, but not limited to, their contribution to sustainable development, poverty eradication and adaptation

1. Overview

54. Certain approaches may provide complementary benefits (co-benefits in addition to mitigation. These include, but are not limited to, sustainable development, poverty eradication and adaptation.

55. Regarding sustainable development, which could also be seen to encompass poverty eradication, a widely accepted definition originates from the Brundtland report: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[35] Sustainable development is generally understood to have three dimensions:

(a) Economic (such as financial investments in local projects);

(b) Environmental (such as improved local air quality);

(c) Social (such as poverty eradication, increased employment).

56. Regarding adaptation, the Intergovernmental Panel on Climate Change defines it as referring to "the process of adjustment to actual or expected climate and its effects".[36] It should be clarified that the scope of this document is limited to approaches to enhance the cost-effectiveness of, and to promote, mitigation actions, with adaptation co-benefits.

2. Options

57. Table 12 lists the ways in which approaches can provide co-benefits by contributing to sustainable development. Approaches that mitigate emissions in developing countries typically mandate that they also contribute to the sustainable development of these countries.[37] Alternatively, approaches that mitigate emissions in developed countries have a more mixed record, with multilateral approaches tending not to mandate contributions to sustainable development[38] but with domestic approaches tending to require, for example, the allocation of some revenue raised from the sale of units to support local economic,

[35] World Commission on Environment and Development. 1987. *Our Common Future.*

[36] IPCC. 2014. Summary for policymakers. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*

[37] For example, a purpose of the CDM is to assist developing countries in achieving sustainable development, as set out in Article 12, paragraph 2, of the Kyoto Protocol. The China Certified Emission Reduction (CCER) requires that an activity contribute to the sustainable development of society. The Plurinational State of Bolivia's proposed mechanism for climate resilience and sustainable development has the purpose of assisting developing countries to achieve an effective and successful transition towards holistic and resilient low-carbon sustainable development patterns, trajectories and pathways in the context of the principles and provisions of the Convention.

[38] Multilateral approaches between developed countries include JI (which contains a general reference to the sustainable development of host Parties but, in practice, host Parties have not mandated such contributions) and IET (which does not contain a textual reference to the sustainable development of participating Parties but, in practice, some Parties have sought to allocate revenue from sales of units to local projects, with varied results in implementation).

environmental or social projects.[39] The quantification of sustainable development impacts is complex but there are a number of ongoing initiatives to achieve this.[40]

Table 12
Providing co-benefits by contributing to sustainable development and poverty eradication

Option	*Description*	*Considerations*	*Examples*
Confirmation from host jurisdiction	The host jurisdiction must confirm that the activity helps it to achieve sustainable development	Upholds sovereign right of a jurisdiction. Has been criticized for lack of transparency and inadequate conduct of assessments	CDM[a]
Independent confirmation	An independent entity must confirm that an activity assists the host country to achieve sustainable development	Can enhance transparency of methods used to assess contributions. May impose additional cost on participants	GS, VCS[b]
Negative lists	An activity of a certain type is automatically deemed to have negative sustainable development impacts and is ineligible to be recognized	Requires advance consideration of activities on negative list. May prevent recognition of atypical activities of a particular type	Australian CFI[c]
Levy on mitigation outcomes	A levy may be applied to a portion of mitigation outcomes from an activity. These mitigation outcomes may then be monetized with the proceeds remitted to sustainable development activities	Ties level of funding for sustainable development to current market conditions for units representing mitigation outcomes. May reduce incentive to invest in activities subject to the levy	China CDM fund (levy on certain industrial gas activities)

[a] The CDM currently applies this option, requiring each activity to receive confirmation from its host Party that it will assist the Party to achieve sustainable development. Participants in an activity

[39] Many ETS in developed countries direct some or all revenue from the sale of units to support local projects. These include the EU ETS (support for pilot projects in renewable energy and carbon dioxide capture and storage in geological formations), the Republic of Korea (fund to support research and development), California (transportation and sustainable communities, clean energy and energy efficiency, natural resources and waste diversion), Quebec (projects as set out in accordance with provincial policy) and RGGI (energy efficiency, renewable energy production and direct energy bill assistance).

[40] For example, GS has tried to quantify impacts by project and benefit type (for example, that wind projects have contributed up to USD 100 million annually in reduced fossil fuel imports), while the United Nations Environment Programme is considering an integrated approach that includes sustainable development indicators, stakeholder involvement procedures and safeguards against negative impacts to assess the co-benefits of nationally appropriate mitigation actions.

are required to explain in their project documentation how it contributes to the sustainable development of the host Party. This is used for public global and local consultation. The CDM has developed a tool to enable participants in an activity to describe, on a voluntary basis, the contributions of their activity in a consistent and standardized manner using a set of predetermined sustainable development criteria and indicators.

[b] GS requires assessments to be performed before and after implementation of an activity to confirm that it does no harm consistent with the United Nations Millennium Development Goals Carbon Safeguard Principles; assessments are performed by independent experts accredited under the CDM. VCS optionally enables the 'tagging' of units with independent confirmation of their sustainable development benefits, to be performed by three independent entities.

[c] Under the Australian CFI, these include activities that pose risks to water availability, biodiversity conservation, employment, local communities or land access for agricultural production.

58. Table 13 lists the ways in which approaches can provide co-benefits by contributing to adaptation.

Table 13
Providing co-benefits by contributing to adaptation

Option	*Description*	*Considerations*	*Examples*
Levy on mitigation outcomes	A levy may be applied to a portion of mitigation outcomes from an activity. These mitigation outcomes may then be monetized with the proceeds remitted to adaptation activities.	Ties level of funding for adaptation to current market conditions for units representing mitigation outcomes. May reduce incentive to invest in activities subject to the levy.	CDM, JI, IET[a]
Allocate revenue from unit issuances towards adaptation	Revenue raised from the auction of units issued by trading approaches can be invested in adaptation projects.	Presupposes that trading approaches will issue units on the basis of auctioning (as opposed to free allocation).	Quebec

[a] The CDM levies a share of proceeds of 2 per cent on all unit issuances, other than from activities in the least developed countries, which are exempt. Units representing this share of proceeds are forwarded to a separate account in the CDM registry to be monetized, with proceeds remitted to the Adaptation Fund. According to the most recent *Adaptation Fund Trust Fund: Financial Report prepared by the Trustee*, USD 190.4 million had been raised as at 30 June 2014 to support adaptation activities. Decision 1/CMP.8 (Doha Amendment to the Kyoto Protocol), paragraph 21, extended this levy to first international transfers of a Party's assigned amount units (though not removal units) and the issuance of units under JI.

F. How approaches have effective institutional arrangements and governance

1. Overview

59. Institutional arrangements and governance refer to the means by which an approach is regulated.

2. Options

60. There is a general convergence among approaches that regulation involves actors at different levels. These include the following:

(a) A high-level body responsible for establishing the approach and providing guidance on fundamental policy matters, such as the scope and coverage of the approach, rules regarding the distribution of mitigation outcomes, rules regarding the MRV of emissions and – for trading approaches, given the fundamental importance of the reference level – the cap;[41]

(b) An executive or supervisory body responsible for managing the approach, consistent with the broad parameters set out by the high-level body;[42]

(c) An administrative body responsible for supporting the operations of the approach within the limits of its delegated authority;[43]

(d) Third-party experts, accredited under the approach, responsible for specific tasks such as verifying mitigation outcomes;[44]

(e) Advisory bodies responsible for recommending technical rules or assessments;[45]

(f) Bodies responsible for enforcing compliance with the approach.[46]

61. Compliance is particularly important for approaches that recognize mitigation outcomes ex ante (most trading approaches), where an entity's non-compliance can undermine the environmental integrity of the entire approach. In contrast, approaches that recognize mitigation outcomes ex post (most non-market-based approaches as well as most crediting approaches) generally – though not always – have a lighter compliance regime, as the consequence of an entity's non-compliance is generally just the non-generation of mitigation outcomes. It may also be noted that approaches developed and implemented by

[41] Examples include the CMP (for the CDM, JI and IET), national or subnational legislatures for approaches developed by Parties (or by subnational authorities) or boards of directors (for private-sector approaches); the Board of Directors (Climate Action Reserve (CAR)); the GS Foundation Board (for GS); and the VCS Board and VCS Association (VCS).

[42] Examples include the Executive Board of the CDM, the JISC , the National Development and Reform Commission (for CCER), the Carbon Board (Costa Rica), the Joint Committee between two governments (for the Joint Crediting Mechanism (JCM)) and the Air Resources Board (for California). For some approaches, particularly those developed by non-governmental organizations, this role may also be filled by the high-level body.

[43] This role is generally played by staff serving in a governmental, intergovernmental or non-governmental organization (such as the UNFCCC secretariat for the CDM, JI and IET).

[44] Examples include designated operational entities (CDM), accredited independent entities (JI), experts accredited by the national regulatory agency (CCER), experts accredited under the CDM (GS, JCM and VCS), ISO14065-certified bodies (CAR, JCM and VCS).

[45] Examples include: ad hoc selection of experts (CCER); methodology and transparency committees (Costa Rica); expert panel and external experts (JCM); panels and working groups (CDM); technical advisory committee (GS); stakeholder working groups and external expert review groups (CAR); agriculture, forestry and other land-use steering committee, expert assessment panel and technical working groups (VCS).

[46] Penalties for non-compliance in ETS include: EU, EUR 100 per tonne, make-up of shortfall; New Zealand, 30 New Zealand dollars per tonne, make-up of shortfall; Switzerland, 125 Swiss francs per tonne, make-up of shortfall; California, make-up of four times shortfall; Quebec, make-up of three times shortfall; Chinese subnational systems: Beijing, 3–5 times the market price; Chongqing, 20,000–50,000 yuan (RMB); Guangdong, RMB 10,000–50,000 plus deduction of twice the shortfall from the next allocation; Hubei, 3 times the market price plus deduction of twice the shortfall from the next allocation; Shanghai, RMB 50,000–100,000; and Shenzhen, 3 times the market price.

Parties (and subnational authorities) are regulated by public bodies and therefore have recourse to broader public enforcement mechanisms, whereas approaches developed and implemented by other bodies typically do not have such recourse and must rely instead on private law agreements.

62. One consideration about multiple levels of institutional arrangements is the appropriate balance of responsibilities. High-level and executive bodies need to balance the effective exercise of their oversight role with the avoidance of overly technical considerations, which can be voluminous and hinder their ability to effectively manage the approach, or overly prescriptive guidance, which can prove inflexible and unworkable. Alternatively, administrative bodies, third-party experts and advisory bodies need to balance their role in operating an approach with appropriate deference to managing bodies.

G. How approaches relate to international agreements

1. Overview

63. An "international agreement" is any agreement between the national governments of different countries.[47] Examples include the Convention and its instruments (such as the Kyoto Protocol), as well as bilateral or multilateral agreements.

2. Options

64. Some approaches are themselves the product of an international agreement. These approaches generally have strong multilateral legitimacy, having been negotiated by multiple countries, but can also be time-intensive to establish.[48] Other approaches are the product of domestic policies or measures and are linked to other approaches by means of an international agreement.[49] These approaches can be less time-intensive to establish initially, but the act of retroactively linking approaches can pose challenges in terms of harmonizing (or accepting) differences between approaches, with the number of bilateral links rising exponentially with the number of jurisdictions involved.[50] Other approaches do not directly relate to international agreements but may be normatively influenced by them.[51]

IV. Possible implications for the work programme

65. A number of possible implications for the SBSTA work programme on the FVA may be identified as arising from this technical paper and the submissions from Parties and admitted observer organizations, as well as other relevant materials, considered during the course of its preparation. The following points should not be seen as a fully comprehensive

[47] For the purposes of this document, agreements between subnational authorities in different countries, such as the agreement between California and Quebec to link their ETS, are not considered to be international agreements.

[48] The CDM, JI and IET were established by the Kyoto Protocol. The EU ETS was agreed multilaterally by EU member States. JCM is being made operational through bilateral international agreements between Japan and individual developing countries.

[49] Examples of links include those between: the EU ETS and the CDM and JI; the EU ETS and certain non-EU jurisdictions in Europe; and New Zealand and the CDM, JI and UNFCCC provisions relating to removals of emissions by sinks.

[50] For example: linking two jurisdictions requires one bilateral agreement, linking three jurisdictions requires three bilateral agreements, linking four jurisdictions requires six bilateral agreements, and so on.

[51] Examples include approaches that have elaborated methodologies on the basis of standards developed under approaches that were established by international agreement, such as the CDM.

set of possible implications, but may be seen as an attempt to highlight key issues that may be of importance to the future work of the SBSTA.

66. It should be said that it may not be possible for Parties to take a final decision on the nature of the FVA in advance of more clarity emerging from the ADP discussions on the 2015 agreement. It may therefore be worth exploring how, in this context, Parties might be able to give more clarity on the focus and priority of the SBSTA work programme in 2015.

67. There is a need for an **accounting framework** under which approaches operate. This refers to a comprehensive framework that sets out how a Party's fulfilment of a commitment, pledge or contribution under the Convention is to be assessed, including which actions may count towards that fulfilment. It may be developed through the FVA or wider discussions under the ADP. Such a framework would give a basis for the international transfer and use of mitigation outcomes and would also address systems for tracking such transfer and use. Such systems may include registries for individual Parties, which for practical reasons would need to adhere to common technical standards. Centrally administered registries – potentially operated under the Convention – may also be used by Parties not wishing to expend the resources to maintain their own systems. There may also be a centrally administered system to monitor and centralize reporting on the tracking, which could also facilitate the connection of the registries to each other. These systems could build upon the registries and international transaction log under the Kyoto Protocol.

68. There is a need to **determine more clearly the overall concept of the FVA**, as this would enable further steps in the work programme. From the submissions and materials considered in the preparation of this document, it appears that the FVA could evolve to provide either or both of the following functions:

(a) The **assessment and determination of which approaches** are able to generate mitigation outcomes that are recognized internationally. This would be based on the fulfilment by the approaches of specified standards;

(b) Definition and assessment of **eligibility criteria** for Parties to meet if they wish units from their national approaches to be valid for international transfer and use in fulfilling commitments, backed up by the wider **accounting framework**.

69. There is a need to **consider how approaches can be assessed against standards**. It is apparent from the analysis in this document that approaches can meet standards in varying ways. Understanding how approaches meet standards, or to what extent they meet the standards in situations where the answer is not black and white, is fundamental to understanding the integrity of the mitigation outcomes.

70. It also appears, from the analysis in this document, that there is **value in a central institution that can promulgate and share standards**. Approaches in place today regularly look to UNFCCC standards as a point of reference, either to be used directly or to be used as a basis or starting point in the development of their own standards. This can serve the harmonization of standards, can promote greater regulatory certainty and lower transaction costs for users, and can help to safeguard environmental integrity.

71. With regard to any **eligibility criteria for Parties**, it appears these would need to be focused on demonstrating that Parties have sufficiently robust and transparent systems in place to operate in accordance with the prevailing accounting framework. These could cover the nature of the commitment, pledge or contribution; systems for MRV; systems for tracking the transfer and use of mitigation outcomes; and the submission of relevant national inventories and additional information on the transfer and use of mitigation outcomes. Consideration would also need to be given to how these criteria would be assessed, such as assessment by independent experts or a system of peer review.

72. A further consideration is the **manner in which approaches provide co-benefits** with regard to sustainable development, poverty eradication and adaptation and the extent to which this should be specified at the international level.

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Annex

List of approaches considered by this technical paper

A. Approaches developed or being developed by Parties

Australia: Carbon Farming Initiative (CFI)

Bolivia, Plurinational State of: mechanism for climate resilience and sustainable development (CRD)

China: China Certified Emission Reduction (CCER)

Costa Rica: domestic carbon market

European Union: Emissions Trading System (EU ETS)

Japan: Joint Crediting Mechanism (JCM)

Kazakhstan: emissions trading system (Kazakhstan ETS)

Korea, Republic of: emissions trading system (Korea ETS)

Mexico: carbon tax

New Zealand: emissions trading system (NZ ETS)

South Africa: carbon tax

Switzerland: emissions trading system (Switzerland ETS)

B. Existing mechanisms under the Kyoto Protocol

Clean development mechanism (CDM)

International emissions trading (IET)

Joint implementation (JI)

C. Other relevant approaches

Alberta (Canada) emissions trading system and crediting programme

American Carbon Registry (ACR)

California (United States of America) emissions trading system and crediting programme

China's seven subnational emissions trading systems (Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin)

Climate Action Reserve (CAR)

Climate Trust (CT)

Gold Standard (GS)

Ontario (Canada) greenhouse gas emissions reporting regulation

Oregon (United States) Carbon Dioxide Standard

Quebec (Canada) emissions trading system and crediting programme

Regional Greenhouse Gas Initiative (RGGI) (United States)

Tokyo (Japan) cap and trade programme

Verified Carbon Standard (VCS)